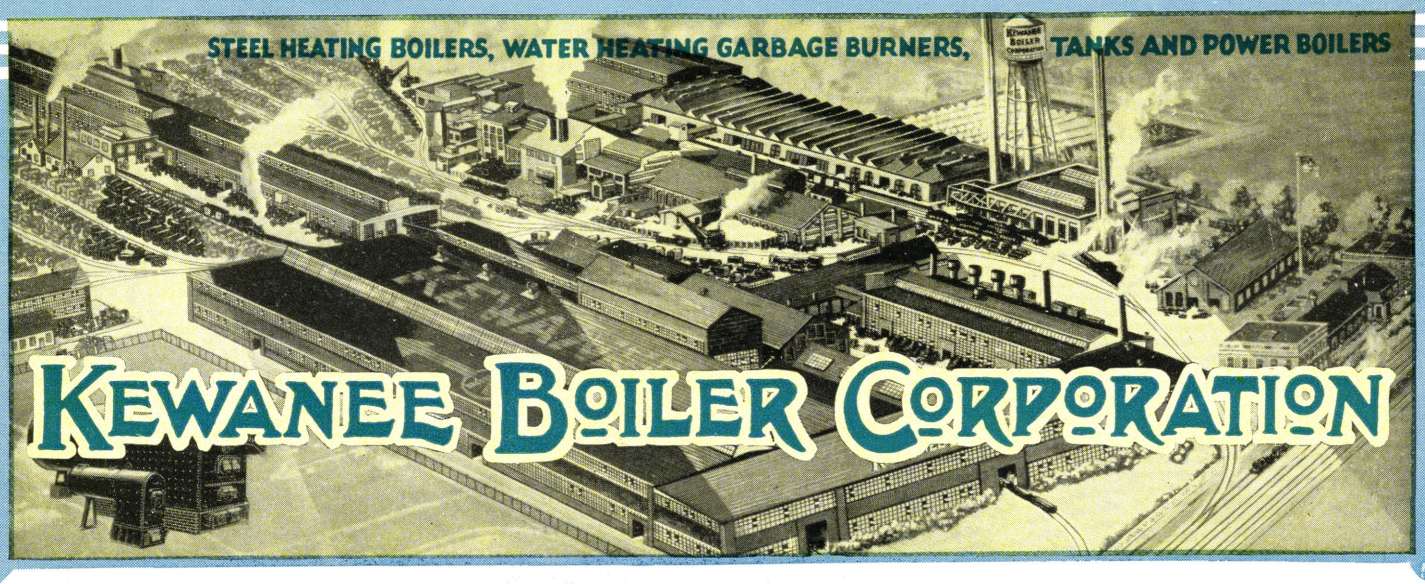
A. I. A. FILE No. 30c1

KEWANEE *Residence* TYPE R BOILER

CATALOG 88

FOR BUNGALOWS, HOMES AND SMALLER BUILDINGS

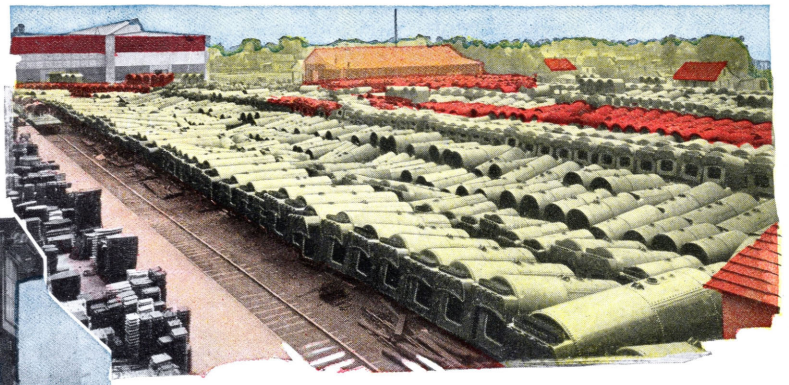
A. I. A. FILE No. 30c1



PLANT AT KEWANEE COVERS 33 ACRES OF GROUND, 13 ACRES OF BUILDINGS

Kewanee Type R Boiler is a climax in the development of the Steel-built boiler. It sets a pace for that increasing trend which demands a steel boiler for residence work and for buildings classed as less than average size.

The same modern, well-equipped plant which is known the country over for the great number of its sterling quality steel heating boilers in use in fine large schools, apartments and commercial buildings, is catering more specifically to the residential class of business with this Kewanee Type R heating unit.



Our firm is no newcomer in the residence heating field. Most of the early boilers built in Kewanee fifty years ago were for the better class dwellings and it is a noteworthy fact that many even yet are in active service today.

It is no unusual thing for us to be called upon to furnish minor items such as grate bars which have been inadvertently burnt out after thirty, forty or even more years of continuous service in heating some home or smaller building. Thus proving one contention of ours Kewanee boilers are built first of all to last a lifetime.

Type R Electric-Weld Steel Boiler is designed to carry on the Kewanee name for long-lived dependability in the Residence heating field.

Type R Boilers may be shipped from factory same day order is received and transferred by our own unloading cranes onto trucks for delivery on the job next morning.

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Printed in U. S. A.

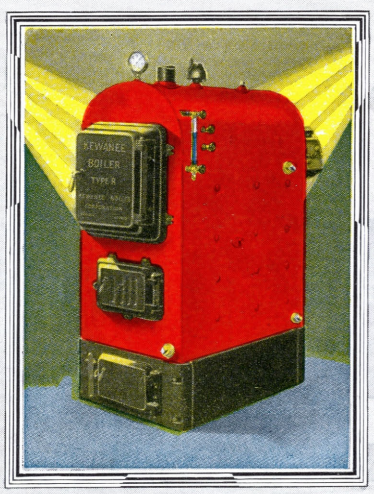
KEWANEE

Residence

TYPE R

BOILER

THE LATER STYLE
STEEL-WELDED BOILER FOR HEATING
BUNGALOWS, HOMES AND SMALLER BUILDINGS



Burns every kind of fuel
Coal—Oil—Gas

KEWANEE BOILER CORPORATION

KEWANEE, ILLINOIS

Division of AMERICAN Radiator and "Standard" Sanitary Corporation

Kewanee Branches

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TULSA, OKLA.
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YORK, PA.

Catalog 88 L

Separate Catalogs on Kewanee Firebox Boilers and Scotch Marine, Riveted for Hi & Lo Pressures; on Kewanee Welded Type C and Hi-Test Boilers; Power Boilers, Tabasco & Storage Water Heaters, Garbage Burners and Tanks Sent on Request.

Kewanee Type "R" Steel Boiler

THE boiler that is built of steel has many striking advantages besides extra strength over other kinds of heaters on the market.

——A steel boiler goes into the basement all in one piece, ready to set on the base assembly.——It is practically indestructible. Cast Iron equipment is made from substantial patterns and lighter parts are Malleable Iron. ——In Kewanee Type R proportional balance of Grate Area, Combustion Space, Heating Surface, Water Content, Steam Space and other technical requirements for obtaining highest efficiency in a heating boiler are cleverly fulfilled. Advantage is taken of high thermal conductivity, due to the even thicknesses in Steel plates and tubes.——The firebox has the necessary height and length for complete combustion of the fuel and the Type R crown sheet is *not inverted*, it is *right-side-up* so as to shed any sediment or loose scale that might be precipitated from the water.——It is a convenience to be able to clean the heating surfaces and flues from the front of the boiler. So there need be no insulating layer of soot to obstruct the heat transfer process.

—So the Type R boiler fabricated from steel with electric-weld seams and with cast iron base complies with every consideration which makes for economy and dependability in steam generation and water heating. This later series is fashioned for the new style habitable basement. It will fit through the usual door or opening.

All the requirements for safe and sound construction comprised in the A.S.M.E. Code for low pressure heating boilers are complied with. This is the highest authority. Every Type R Boiler has to pass rigid inspections for workmanship and is subjected to hydrostatic test of 60 pounds pressure on each square inch. Each bears a registered number, also official stamp of approval of a leading Boiler Inspection and Insurance Company.

Uniform Rating

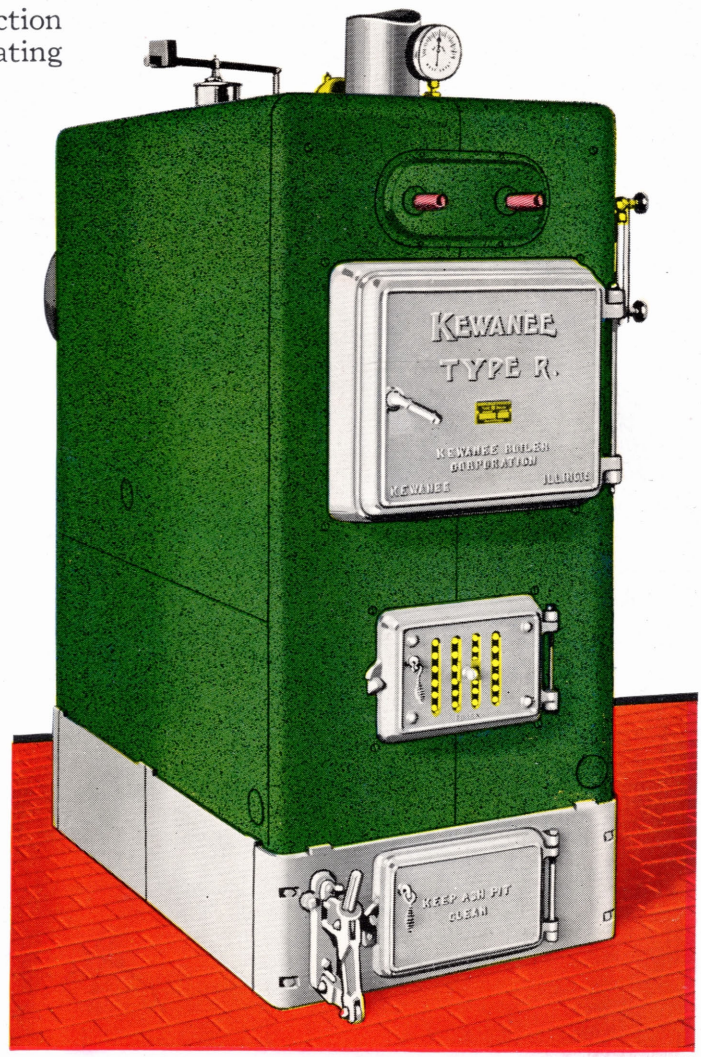
"The ratings published in this catalog are in conformity with the Steel Heating Boiler Institute's Code for Rating Low Pressure Heating Boilers."

Type R rating is Total Radiation Load at boiler outlet expressed in equivalent surface of cast iron radiators emitting 240 units of heat or B.T.U.'s per square foot per hour for Steam, at 2 lbs. pressure and 150 B.T.U. for Water at 180 degrees temperature.

Total Radiation Load corresponds with the estimated design load which is the sum of 3 items—

1. Normal heat emission of connected radiation required to heat the building to 70 degrees.
2. Maximum heat required for water heaters and other apparatus.
3. Heat emission of all mains and piping connections.

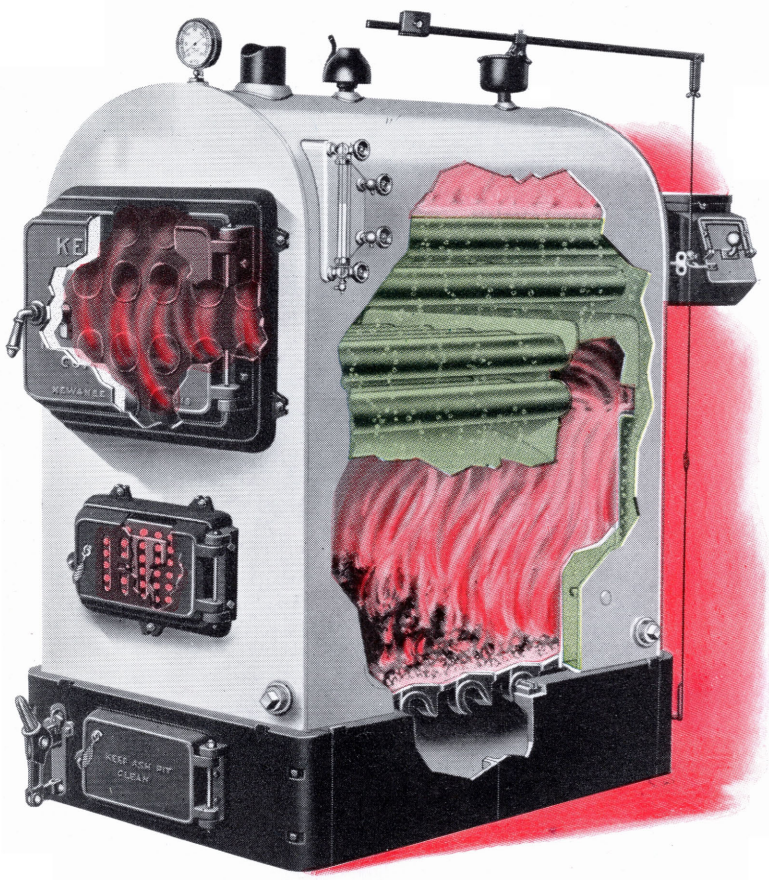
Provided the stack and breeching connections are in accordance with the manufacturer's specification, each Type R Boiler will carry all the radiation load listed as its capacity, and in addition will easily handle large overloads with long firing periods and with low stack temperatures.



PATENTED

KEWANEE TYPE R STEEL BOILER WITH JACKET

KEWANEE STEEL BOILER *Residence* TYPE R



KEWANEE TYPE R STEEL BOILER WITHOUT JACKET
NUMBERS 742 TO 748, BURNING COAL
TO HEAT 790 TO 1960 SQ. FT. STEAM RADIATION

Highly Efficient Unit for Heating Residences and Smaller Buildings with every kind of fuel, Coal—Oil—Gas

This design in detail consists of a spacious Firebox in one piece with the Rear Combustion Chamber, a patented feature, other patents pending, where fuel is ignited first then the burning process is completed before the products of combustion are drawn through the bank of First Pass tubular flues.

The flow of hot gases is reversed in the Cast Iron Refractory Insulated Front Smokebox and directed back into the Second Pass bank of tubes where the rest of the useful heat is abstracted by the surrounding water which is thereby kept in active circulation.

Two Ends and a single Wrapper Sheet forming the enclosure for Water Content and Steam Space complete this simple unit. It merely has to be set down on the Cast Iron Base which comes with the Removable Rocking Grate Bars, Shaker and Doors all ready assembled. This permits the heating boiler to be piped up and placed in operation without delay.

Type R Boiler is a later Kewanee development employing characteristically sound steel construction in the compacted style of heating unit. It is designed to serve the smaller kind of building—such as garage, store, school, church, apartment, office or residence.

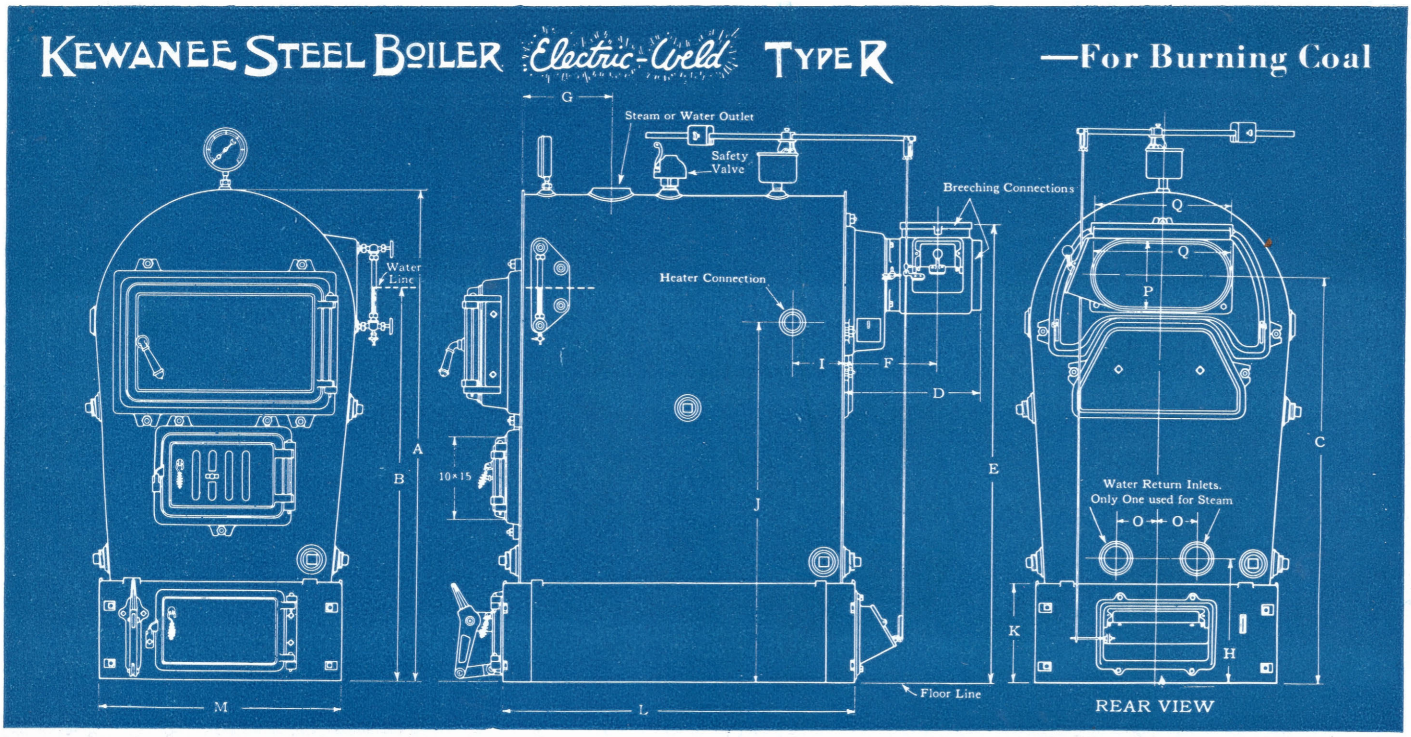
For every kind of solid fuel. Coke, all grades of soft or hard coals either stoker or hand-fired and their briquette or powdered forms all are burned with excellent success, also any liquid fuel oils, and natural or commercial gas are being used with high efficiency in Kewanee Type R Boilers. All as described in subsequent pages.

EQUIPMENT FOR COAL BOILER: Firedoor, Front Cleanout Door, Rear Opening, Two-way Smoke Hood. Four Cleanout Plugs. Base complete including Ash Pit Door, Rear Draft Pouch. Rocking Grate with removable Bars, Levers and Shaker Arm and Handle. Firing Tools—Hoe, Poker, Flue Brush and Soot Scraper.

TRIMMINGS FOR STEAM BOILER: Water Gauge, two compression Gauge Cocks, Steam Gauge, Pop Safety Valve, Automatic Arco Draft Regulator with Lever, Weight, Jointed Rod and Collar. Specifications in full on page 11.

FOR WATER BOILER: Combination Altitude Gauge and Thermometer, and Damper Regulator only.
Type R Boilers are tapped each side for Excelso Water Heater.
All sizes have flanged opening (not shown) so Kewanee Indirect Hot Water Coil may be installed any time.

KEWANEE STEEL BOILER *Electric-Weld* TYPE R —For Burning Coal

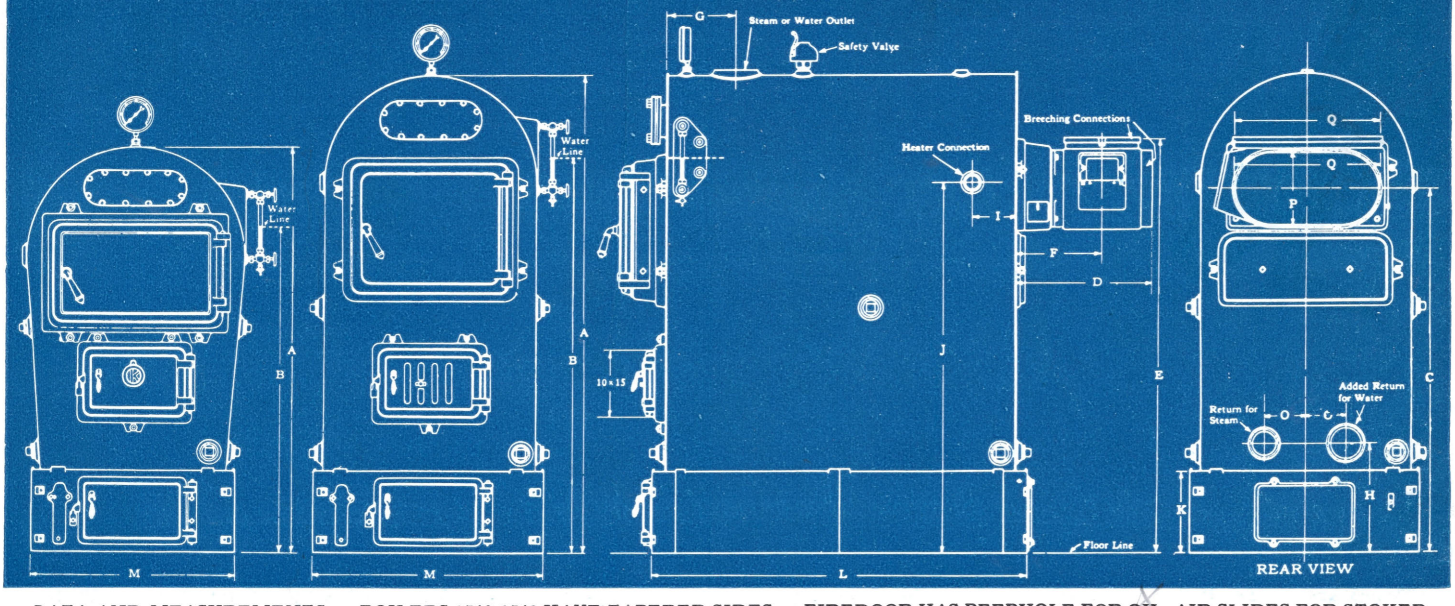


DATA AND MEASUREMENTS. BOILERS 745 TO 748 HAVE STRAIGHT SIDES. ALL SIZES HAVE FLANGED BOX FOR HOT WATER COIL.

Number of Boiler . . . . . Bituminous Coal		742	743	745	746	747	748
Anthracite Coal		2742	2743	2745	2746	2747	2748
Code, Steam Boiler . . . . . Bituminous Coal		Rescu	Reset	Resew	Resin	Resol	Rest
Anthracite Coal		Ruscu	Ruset	Rusew	Rusin	Rusol	Rust
Rated Capacity—Steam	**sq. ft.**	**790**	**1000**	**1350**	**1600**	**1780**	**1960**
—Water	**sq. ft.**	**1260**	**1600**	**2160**	**2560**	**2850**	**3140**
—Btu. per Hour	**1000's**	**190**	**240**	**324**	**384**	**427**	**470**
Water Heater Rating—100° 3 hrs.	gal.	1100	1400	1800	2100	2400	2700
Heating Surface	sq. ft.	63	73	101	114	127	140
Grate Area	sq. ft.	4.8	5.6	6.7	7.8	8.8	9.9
Width of Boiler Shell	in.	31	31	30½	30½	30½	30½
Width of Boiler Overall	in.	32½	32½	32	32	32	32
Shell Length Overall	in.	39½	45½	45½	51½	57½	63½
Firebox Height	in.	21	21	24	24	24	24
Firebox Width x Length	in.	21¼x32	21¼x38	25¼x38	25¼x44	25¼x50	25¼x56
Size of Steam or Water Outlet	in.	4	4	5	6	6	6
Size of Steam Return Inlet	in.	2½	2½	3	3	3	3
Size of Return Inlet added for Water	in.	2½	2½	4	4	4	4
Size of Safety Valve Opening	in.	1¼	1¼	1½	1½	1½	2
*A—Overall Height, Floor to Top of Shell	in.	59½	59½	70¼	70¼	70¼	70¼
**B—Height of Water-line	in.	48	48	58½	58½	58½	58½
Chimney—Diameter, inches x Height, feet		12x35	12x35	16x40	16x40	16x40	16x40
Breeching Diameter	in.	14	14	18	18	18	18
Breeching Connection Size, P x Q	in.	8½x17	8½x17	11x22	11x22	11x22	11x22
C—Height of End Breeching Connection Center	in.	49½	49½	54	54	54	54
D—Back of Boiler to End Breeching Connection	in.	17½	17½	20	20	20	20
E—Height of Breeching Connection	in.	55¾	55¾	61½	61½	61½	61½
F—Back of Boiler to Top Breeching Connection Ctr.	in.	11¼	11¼	12½	12½	12½	12½
G—Steam or Water Outlet Center to Boiler Front	in.	11	11	12	12	12	12
H—Height of Return Inlet Centers	in.	15¼	15¼	16	16	16	16
O—Return Inlet Offset from Boiler Center	in.	5	5	6	6	6	6
Heater Connection Size	in.	2	2	2	2	2	2
I—Heater Connection Center from Back of Boiler	in.	6½	6½	6½	6½	6½	6½
J—Heater Connection Height from Floor	in.	43¾	43¾	54¼	54¼	54¼	54¼
K—Height x M—Width of Base	in.	12x30	12x30	12x34	12x34	12x34	12x34
L—Length of Base	in.	43½	49½	49½	55½	61½	67½
Outside Surface to Cover, Unjacketed	sq. ft.	43	48	60	66	71	77
Approximate Total Weight, Unjacketed	lbs.	2150	2360	2800	3050	3300	3550

*For Jacketed boiler, add 1½" to overall height. For Water add word to code; example: Ship one RESCU WATER complete. See Illustrations pp. 4, 5, 11.
**If Hot Water Coils are installed, refer to page 13 for increased Water Line Heights.

KEWANEE STEEL BOILER Electric-Weld TYPE R —For Oil, Gas or Stoker

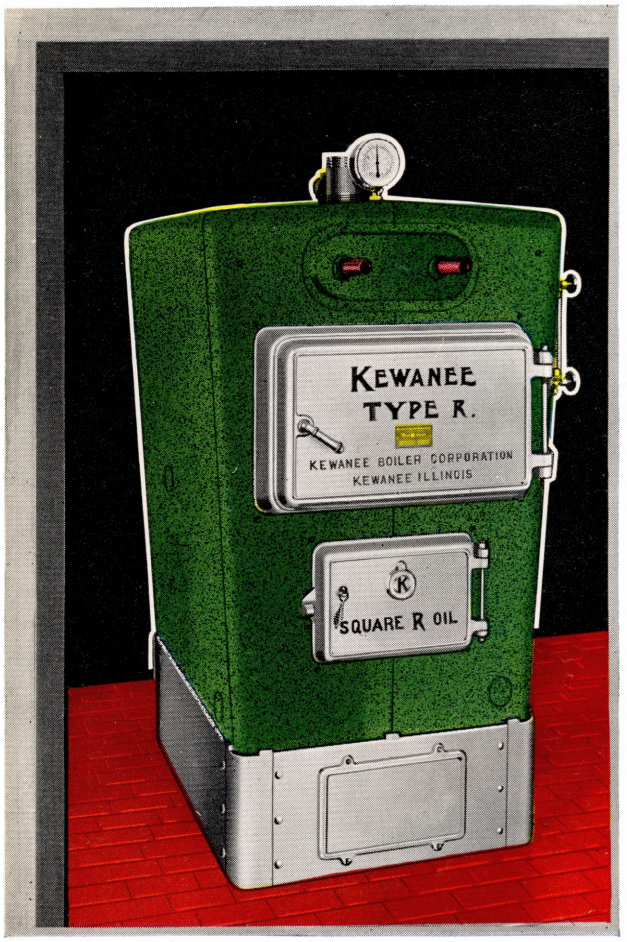


DATA AND MEASUREMENTS. BOILERS 1742-1743 HAVE TAPERED SIDES. FIREDOOR HAS PEEPHOLE FOR OIL, AIR SLIDES FOR STOKER

Number of Boiler	Oil or Gas	1742	1743	1745	1746	1747	1748
	Stoker	0742	0743	0745	0746	0747	0748
Code, Steam Boiler	Oil or Gas	Roscu	Roset	Rosew	Rosin	Rosol	Rost
	Stoker	Riscu	Riset	Risew	Risin	Risol	Rist
Rated Capacity—Steam sq. ft.		**840**	**1120**	**1470**	**1900**	**2160**	**2380**
—Water sq. ft.		**1340**	**1790**	**2350**	**3040**	**3460**	**3810**
—Btu. per Hour 1000's		**202**	**269**	**353**	**456**	**518**	**571**
Water Heater Rating—100° 3 hrs. gal.		1200	1500	2000	2500	2800	3100
Heating Surface sq. ft.		63	73	101	114	127	140
Net Furnace Volume cu. ft.		10.9	13.0	16.5	19.0	21.6	24.2
Width of Boiler Shell in.		31	31	30½	30½	30½	30½
Width of Boiler Overall in.		32½	32½	32	32	32	32
Shell Length Overall in.		39½	45½	45½	51½	57½	63½
Firebox Height in.		21	21	24	24	24	24
Firebox Width x Length in.		21¼x32	21¼x38	25¼x38	25¼x44	25¼x50	25¼x56
Size of Steam or Water Outlet in.		4	4	5	6	6	6
Size of Steam Return Inlet in.		2½	2½	3	3	3	3
Size of Return Inlet added for Water in.		2½	2½	4	4	4	4
Size of Safety Valve Opening in.		1¼	1¼	1½	1½	1½	2
*A—Overall Height, Floor to Top of Shell in.		59½	59½	70¼	70¼	70¼	70¼
**B—Height of Water-line in.		48	48	58½	58½	58½	58½
Chimney—Diameter, inches x Height, feet		10x30	11x30	12x35	13x35	14x35	14x35
Breeching Diameter in.		12	13	14	15	16	16
Breeching Connection Size, P x Q in.		8½x17	8½x17	11x22	11x22	11x22	11x22
C—Height of End Breeching Connection Center in.		49½	49½	54	54	54	54
D—Back of Boiler to End Breeching Connection in.		17½	17½	20	20	20	20
E—Height of Breeching Connection in.		55¾	55¾	61½	61½	61½	61½
F—Back of Boiler to Top Breeching Connection Ctr. in.		11¼	11¼	12½	12½	12½	12½
G—Steam or Water Outlet Center to Boiler Front in.		11	11	12	12	12	12
H—Height of Return Inlet Centers in.		15¼	15¼	16	16	16	16
O—Return Inlet Offset from Boiler Center in.		5	5	6	6	6	6
Heater Connection Size in.		2	2	2	2	2	2
I—Heater Connection Center from Back of Boiler in.		6½	6½	6½	6½	6½	6½
J—Heater Connection Height from Floor in.		43¾	43¾	54¼	54¼	54¼	54¼
K—Height x M—Width of Base in.		12x30	12x30	12x34	12x34	12x34	12x34
L—Length of Base in.		43½	49½	49½	55½	61½	67½
Outside Surface to Cover, Unjacketed sq. ft.		43	48	60	66	71	77
Number of Fire Brick		80	90	95	105	115	125
Approximate Total Weight, Unjacketed lbs.		1900	2060	2500	2730	2920	3125

*For Jacketed boiler, add 1½" to overall height. For Water add word to code; example: Ship one ROSCU WATER complete. See Illustrations pp. 4, 10, 11
**If Hot Water Coils are installed, refer to page 13 for increased Water Line Heights.

KEWANEE STEEL BOILER | SQUARE "R" OIL OR GAS



PATENTED

KEWANEE SQUARE "R" OIL OR GAS BOILER SERIES 83R1 TO 83R9 WITH STEEL BASE HOT WATER COPPER COILS PROVIDED FOR

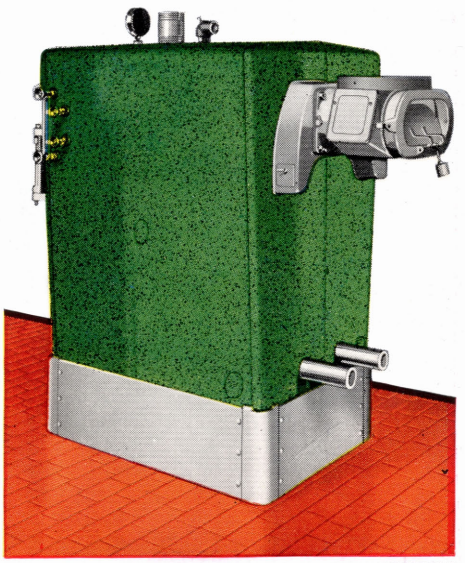
83R Boiler Built Expressly for Oil, Gas or Stoker

This Square "R" Oil, Gas or Stoker 83R is a Jacketed Kewanee Steel Boiler. One of the later additions to the Kewanee line, filling the demand for a Residence Boiler in a larger range of sizes, designed especially for Mechanical Firing to meet closely competitive circumstances yet retaining in all respects the Kewanee Standard of Quality.

The same technically correct design, substantial steel construction and neat appearance of the Type "R" Series has been maintained. The ratio of essential proportions having been adjusted to suit the conditions for perfect combustion of oil or gas fuels. So it is obvious that this 83R Series will render the same dependable and efficient service which is always a characteristic of Kewanee.

The 83R Boiler is equipped with the Insulated Steel Jacket and a Steel Base of new and improved style. Covered Coil box welded to the front head makes it a simple matter to accommodate the customer at any time with Kewanee Indirect Hot Water Heating Coils of any capacity, either for Storage Tank or for Instantaneous service. Auxiliary Incinerator Grates can be installed in the larger sizes listed page 12. Boiler specifications in general page 11.

Spinner Blades not furnished for Stoker



PATENTED

REAR VIEW: TWO-WAY DRAFT ADJUSTER reversible for top or end outlet. Stackstat opening in hood $1\frac{5}{16}$" diameter. The tapped openings in either side of boiler shell can be used for aquastat.

Boilers 83R1 to 83R4 have Tapered Sides
Boilers 83R6 to 83R9 have Straight Sides

EQUIPMENT: Steel Base; Firedoor; Front Cleanout Door; Two-way Draft Adjuster, Two-pass Tubes with Spinner Blades; Four Washout Plugs; Stackstat and Aquastat openings. Flue Brush is only tool furnished.

TRIMMINGS for STEAM BOILER: Safety Valve; Steam Gauge; Water Gauge, Glass and Gauge Cocks. For **WATER BOILER**: Combination Altitude Gauge and Thermometer only.

All Jacketed Boilers have indestructible baked enamel steel jacket, lined with multi-ply asbestocel insulation, or with insulating blanket on boiler in Regal style jackets.

Knock-out discs are provided in jackets opposite boiler openings.

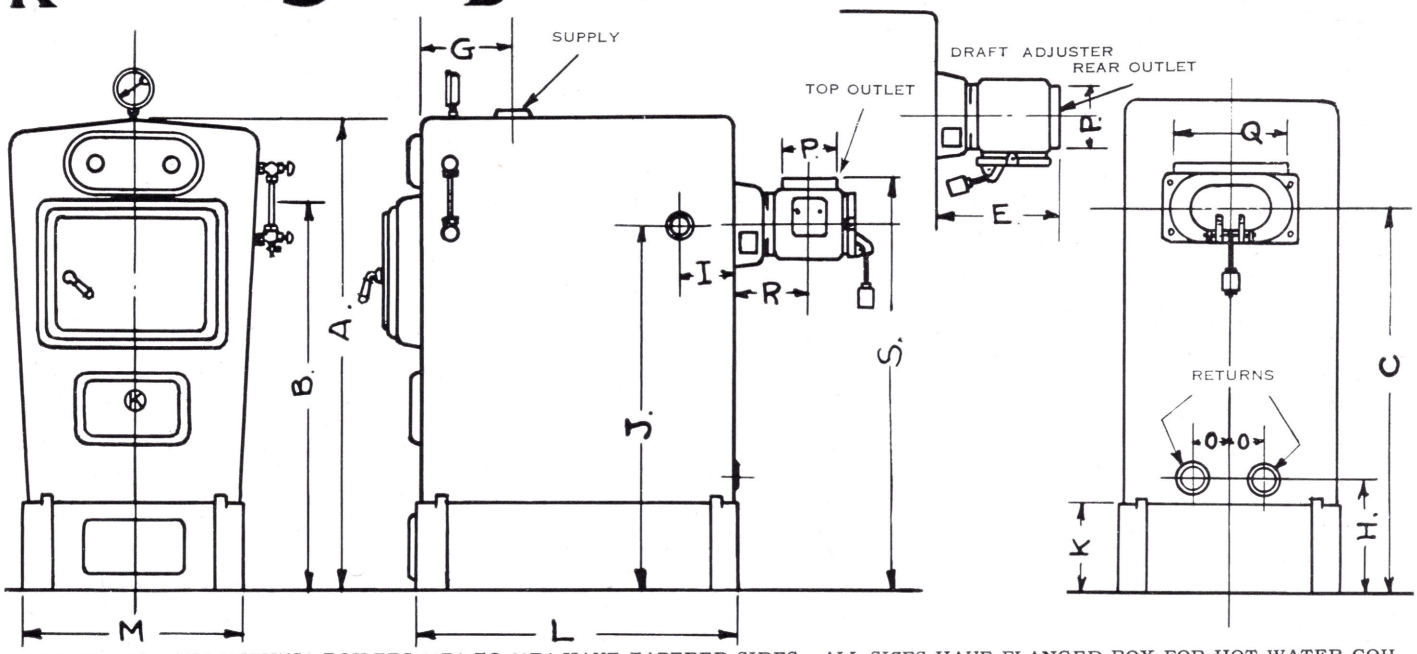
AMONG MANY REASONS WHY ALL BURNERS WORK BEST IN KEWANEE 83R BOILERS—FLAMES EXPAND IN THE HIGH FIRE BOX. TWO-PASS TUBES WITH SPINNER BLADES PROVIDE LONG EFFECTIVE GAS TRAVEL

Two-Pass Tubes double the gas travel back and forth so as to utilize more of the quick intense heat of the burner flame. Spinner Blades inside these flues force the hot gases to swirl and hug the tube walls, helping them transfer more heat to the water. And the Two-Way Draft Adjuster automatically gives the owner a final touch of economy through even and accurate control of the draft. Insulated doors hold all the heat in.

TESTS OF No. 83R4 KEWANEE SQUARE "R" STEEL BOILER

Boiler Rating, Steam, Sq. Ft.	1513	Fired with
Heating Surface, Sq. Ft.	89	No. 3 Fuel Oil
Furnace Volume, Cu. Ft.	13.0	
Date of Tests		April, 1934
Test Number		042634 042434
Duration, Hr.		3.5 3.0
Steam Pressure, Gage, Lb. Per Sq. In.		0 0.2
Feed Water Temperature, Deg. F.		88.8 107.8
Moisture In Steam, Per Cent		0.3 0.4
Gases Leaving Boiler:		
Temperature, Deg. F.		260 300
CO_2, Per Cent		11.8 11.8
Input:		
Oil Rate, Lb. Per Hr.		23.2 32.0
Oil Rate, Gal. Per Hr.		3.2 4.4
Btu Per Hr.		454970 627520
Btu Per Cu. Ft. of Furnace Per Hr.		35000 48200
Output:		
Btu Per Hr.		377540 502400
Sq. Ft. of Radiation		1573 2093
Per Cent of Rating		104 138
Btu Per Sq. Ft. of Heating Surface Per Hr.		4242 5640
Overall Efficiency, Per Cent		83.0 80.0

KEWANEE STEEL BOILER 83R SERIES SQUARE "R" OIL, GAS OR STOKER



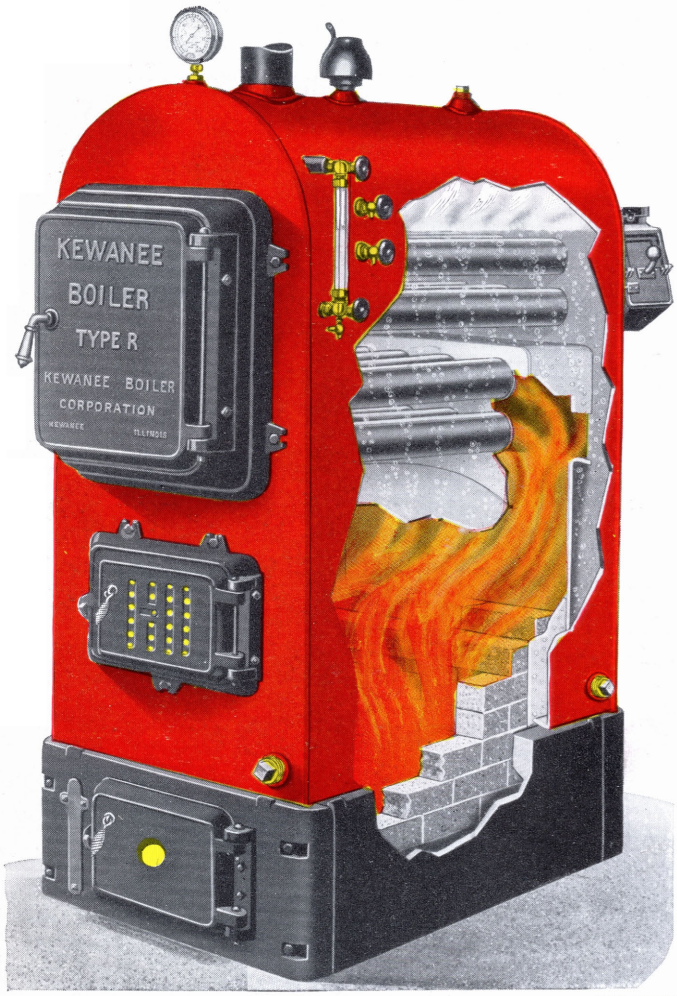
DATA AND MEASUREMENTS. BOILERS 83R1 TO 83R4 HAVE TAPERED SIDES. ALL SIZES HAVE FLANGED BOX FOR HOT WATER COIL.

Boiler Number . . . . . Oil or Gas Stoker	83R1 083R1	83R2 083R2	83R3 083R3	83R4 083R4	83R6 083R6	83R7 083R7	83R8 083R8	83R9 083R9
Code Word—Steam . . . . . Oil or Gas Stoker	QROSA QRASA	QROSB QRASB	QROSC QRASC	QROSD QRASD	QROSF QRASF	QROSG QRASG	QROSH QRASH	QROSK QRASK
—Water . . . . . Oil or Gas Stoker	QROWA QRAWA	QROWB QRAWB	QROWC QRAWC	QROWD QRAWD	QROWF QRAWF	QROWG QRAWG	QROWH QRAWH	QROWK QRAWK
Rated Capacity—Steam . . . sq. ft.	**901**	**1105**	**1326**	**1513**	**2091**	**2363**	**2652**	**2924**
—Water . . . sq. ft.	**1441**	**1768**	**2121**	**2420**	**3345**	**3780**	**4243**	**4678**
—Btu. per Hour 1000's	**216**	**265**	**318**	**363**	**502**	**567**	**637**	**702**
Heating Surface . . . . . .sq. ft.	53	65	78	89	123	139	156	172
Net Furnace Volume . . . . . .cu. ft.	6.6	8.8	10.9	13.0	16.5	19.0	21.6	24.2
Width Boiler Overall . . . . . in.	32½	32½	32½	32½	32	32	32	32
A —Height Boiler Overall . . . in.	60¾	60¾	60¾	60¾	71½	71½	71½	71½
Shell Length Overall . . . . in.	27½	33½	39½	45½	45½	51½	57½	63½
Firebox Height . . . . . in.	21	21	21	21	24	24	24	24
Addn'l. Fur. Hgt. for Stoker** in.	4	4	4	4	6	6	6	6
Firebox Width x Length . . in.	21¼x20	21¼x26	21¼x32	21¼x38	25¼x38	25¼x44	25¼x50	25¼x56
*B —Water Line Height . . . . in.	48	48	48	48	58½	58½	58½	58½
C —Smoke Outlet End, Height . . in.	49½	49½	49½	49½	54	54	54	54
E —Smokehood Length . . . . in.	16	16	16	16	18½	18½	18½	18½
G —Steam Supply Location . . . in.	12⅜	12⅜	12⅜	12⅜	13⅜	13⅜	13⅜	13⅜
H —Returns Height . . . . . in.	15¼	15¼	15¼	15¼	16	16	16	16
I —Heater Connection Location . in.	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞	7⅞
J —Heater Connection Location . in	43¾	43¾	43¾	43¾	54¼	54¼	54¼	54¼
K —Base Height . . . . . in.	12	12	12	12	12	12	12	12
L —Base Length . . . . . in.	31½	37½	43½	49½	49½	55½	61½	67½
M—Base Width . . . . . in.	30	30	30	30	34	34	34	34
O —Returns Location . . . . . in.	5	5	5	5	6	6	6	6
P —Breeching Connection Width . in.	8½	8½	8½	8½	11	11	11	11
Q —Breeching Connection Length . in.	17	17	17	17	22	22	22	22
R —Boiler to Smoke Outlet Center. in.	9¾	9¾	9¾	9¾	11	11	11	11
S —Smoke Outlet Top, Height . . in.	55¾	55¾	55¾	55¾	61½	61½	61½	61½
Steam Supply Size, or Water . . . in.	4	4	4	4	5	6	6	6
Steam Return Size . . . . . in.	2½	2½	2½	2½	3	3	3	3
Added Return for Water . . . . in.	2½	2½	2½	2½	4	4	4	4
Safety Valve Size . . . . . in.	1¼	1¼	1¼	1½	1½	1½	2	2
Heater Connection Size . . . . . in.	2	2	2	2	2	2	2	2
Chimney Diam. x Height . . . in. x ft.	10x35	11x35	12x35	12x40	14x40	14x40	15x45	16x50
Breeching Diameter . . . . . in.	12	13	14	14	16	16	17	18
Outside Surface to Cover, Unjacket'd. sq. ft.	33	38	43	48	60	66	71	77
Shipping Weight, Jacketed . . . . .lbs.	1600	1800	2000	2200	2800	2900	3100	3300

*If Hot Water Coils are installed, refer to page 13 for increased Water Line Heights. **When higher bases are used, height of Water Line B—is increased, also dimensions A—C—H—J—K—S—. For Stoker, Firedoor with air slots and baffle plate replaces Oil-Gas refractory insulated door with peephole.

KEWANEE STEEL BOILER *Residence* TYPE R

For Oil, Gas or Stoker



KEWANEE TYPE R STEEL BOILER
NUMBERS 1742 TO 1748, FOR OIL, GAS OR STOKER
TO HEAT 840 TO 2380 SQ. FT. STEAM RADIATION

The same favorable conditions for complete combustion which insure success with solid fuel in the Type R boiler produce high efficiency with any commercially established oil burner.

——There is height, width and length in the firebox so that the flames can expand and swirl.

——There is a high combustion chamber where the burning process is completed before the hot gases of combustion are strained through the first and second banks of tubes.

It is highly important that the water content be sufficient to absorb intense and intermittent heat—a characteristic of oil operation—as in Type R boilers, otherwise the water level in the gauge glass would be jumpy and subject to sudden disappearance or flooding. Likewise the water content must be in active circulation around the heating surfaces so as to sweep away the steam bubbles as fast as they are formed. Transmission of heat depends upon the velocity of the fluid and gases. Fast circulation of water is encouraged by the short wide water ways of the Type R boiler.

It is an axiom that any boiler that will not burn coal successfully will not burn oil successfully, so "if you burn oil and expect to get steam, you must have a boiler that steams as well with coal or any other fuel."

The Kewanee Type R Steel Boiler steams just as well with any kind of fuel: solid, fluid or gaseous, either mechanically fired with automatic regulation or hand-fired.

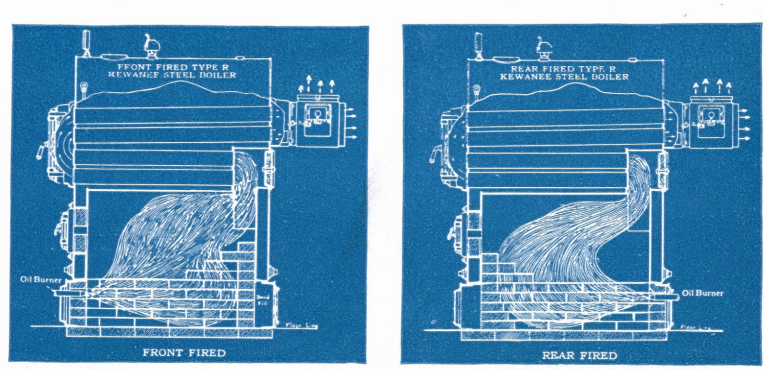
THE KEWANEE TYPE R BOILER is better adapted for oil burning service than the ordinary boiler on the market, because its steel construction will stand up under the severe stresses from highly localized blazing oil flames and from alternate cooling caused by the controlling action of the Thermostat. But this Type "R" also offers the facility for easy conversion from one fuel to another.

This *double pass* arrangement of flues gives extra length of travel so that as much available heat as practicable is transmitted from the flue gases inside to the water around the outer heating surfaces.

Through years of experience in the field, supplemented by extended laboratory tests, Kewanee is qualified to offer expert suggestions on practical setting plans for the efficient burning of oil or gas when fired from front, side, rear or below.

EQUIPMENT FOR OIL, GAS OR STOKER: Firedoor, Flue Cleanout Door, Rear Opening Cover, Two-way Draft Adjuster, Four Cleanout Plugs; Steel Base complete with Front Plate, Flue Scraper.
Specifications in general on page 11.

TRIMMINGS FOR OIL, GAS OR STOKER STEAM BOILER: Steam and Water Gauges, 2 Compression Gauge Cocks, Pop Safety Valve.
WATER BOILER: Combination Altitude Gauge and Thermometer only.
Data and Measurements Oil, Gas or Stoker Boiler, see page 7.



Sections Showing Type R Oil Burning Boiler Settings—Front or Rear Fired

KEWANEE STEEL BOILER *Residence* TYPE R

SPECIFICATIONS

PATENTED

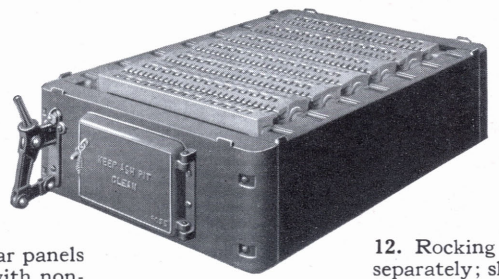
FRONT VIEW

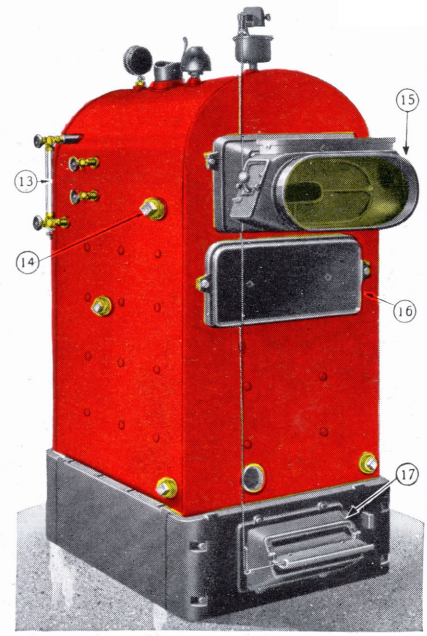
1. Shell flange quality steel plate, low carbon with electric-metallic-arc-weld seams, all one-piece comprising Firebox with arched Crown Sheet right-side-up and integral rear Combustion Chamber, protected by short wide water legs all around.

Front and back Ends, 3/8" thick, and outside Wrapper Sheet, 5/16", forming water and steam space.

Flat surfaces braced with heavy stay bolts welded into countersunk-punched plates. Pipe openings in shell reinforced by heavy welding flanges.

CAST IRON BASE, GOES INTO BASEMENT ALL READY ASSEMBLED





PATENTED

REAR VIEW

11. All Cast-Iron base, front and rear panels bolted to sides; front ash pit door with non-heating grip handle, hinge and latch. Steel Base for Oil, Gas or Stoker.

12. Rocking grate assembly, each bar removable separately; shaker arm with levers, links, locking catch and handle. For smaller sizes of Anthracite grate bars have narrower air spaces.

2. Sensitive steam gauge. Compound retard. With water seal.

3. Front cleanout door refractory insulated hinged on frame both cast iron, with locking handle, for easy access to clean double pass flues from front.

4. Fusible low water safety plug.

5. All contact surfaces on doors and plate work ground to smooth finish for dust-proof construction.

6. Firedoor has Baffle plate, and secondary Air Slide for Coal; insulated for oil, with peephole; non-heating grip handle; hinged on frame, cast iron.

7. Safety Valve. Low pressure, pop.

8. Automatic Arco draft regulator with levers, adjustable weight, hinged rod and collar.

9. First and second pass steel tubes, heavy gauge with ends expanded in flue sheets and beaded, 4" diameter except 83R.

10. Cleanout plugs, non-corrodible brass thread liner.

13. Water gauge glass, brass trimmings, two compression gauge cocks.

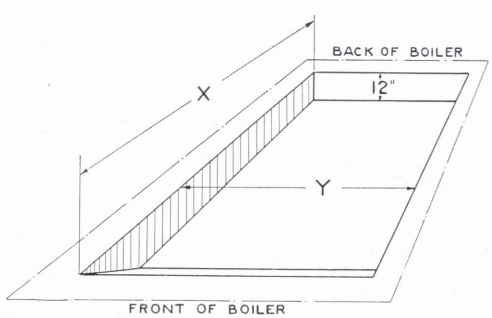
14. Right and left water heater connection, 2" diameter.

15. Two-way smoke hood with cap, choke damper and self-closing check draft damper; Frame with cleanout, all cast iron. Oil, Gas and Stoker boilers have two-way Draft Adjuster.

16. Rear opening for access to combustion chamber and flues with cast iron cover and refractory filled liner.

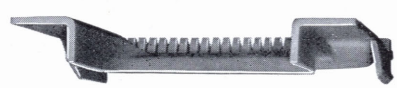
17. Rear Draft Pouch, cast iron, with balanced regulating flap.

SPINNER BLADES For oil or gas fired boilers the boiler efficiency is increased approximately five per cent by spiral baffles or spinner blades which are furnished regularly. The spinner blade also serves as a tube cleaner, by simply withdrawing it from the tube any carbon accumulation is easily removed.



ASH PIT DIMENSIONS TYPE R BOILER

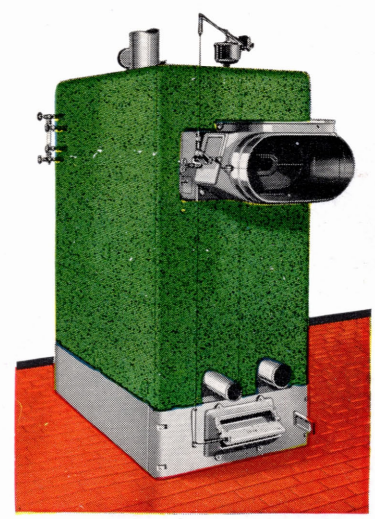
Number of Boiler	742 2742	743 2743	745 2745	746 2746	747 2747	748 2748
Depth of Pit . . . . in.	12	12	12	12	12	12
X—Length of Pit . . in.	32	38	38	44	50	56
Y—Width of Pit . . in.	21	21	25	25	25	25
Clearance back of Rear Head for Smoke Hood in.	17½	17½	20	20	20	20



AUXILIARY AIR CASTING

In burning bituminous coal where extreme smokeless operation is desired, a grate bar extension casting can be furnished to form a pair of secondary air ports at the front end of the firebox.

These air ports provide a by-pass through which an exact quantity of secondary air is diverted from the primary supply entering the damper to the upper surface of the fuel bed where this auxiliary air swirls and mingles with the products of combustion, so helping to perfect the burning process that any vestige of smoke is eliminated.



PATENTED

REAR VIEW JACKETED

Kewanee Type "R" Boiler—an All-Purpose Boiler—for Heat, Hot Water, Incineration

IT is not always necessary to install separate equipment either for heating Domestic Hot Water or for burning up rubbish and garbage.

Because the same steel boiler that furnishes Steam, Vapor or Hot Water Heat for the Residence or Apartment can supply the **Hot Water** for domestic use.

And this **same unit** can also be used for putting to work the available heat units of waste material whilst disposing of the garbage that accumulates in a building.

3 Duties in 1 Boiler

The Kewanee Type "R" Boiler with supplementary Hot Water Coil and Garbage Burning Grate may be said to be a thoroughly domesticated piece of equipment, in the sense that three household cares are solved by one dependable unit.

All the fuel required for those three distinct purposes is burnt in one and the same furnace-chamber with consequent tremendous savings to the owner, so the small extra purchase price is quickly amortized.

Not only is the fuel cost kept lower, but the convenience is so very much greater in keeping just one fire going or in caring for just one burner. And there is less regulatory equipment to be bought for the automatic operation of *3 duties in 1 boiler.*

For SUMMER TIME HOT WATER and INCINERATION

All that is needed is a small fire of the same cheap fuel in same boiler which furnishes heat with such economy in winter.

NO SEPARATE HEATER. No draining the boiler for summer season.

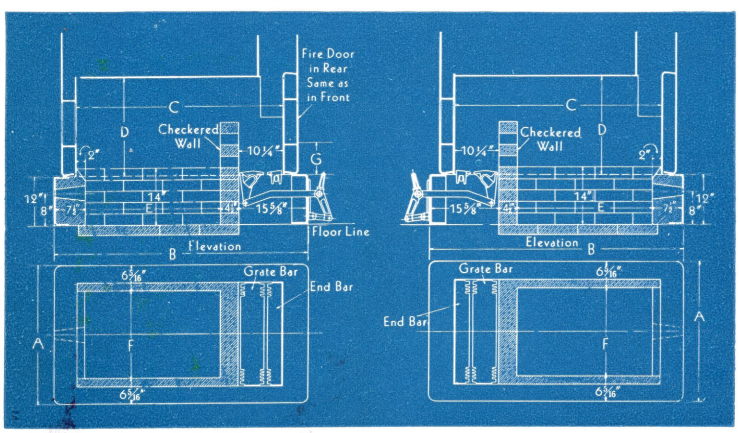
With automatic firing, infrequent "on" periods will keep a supply tank full of Hot Water all day long.

As already stated, the means of serving the three-fold need for heat, Hot Water and Incineration facilities are provided by equipping the Kewanee Type "R" Steel Boiler with an internal coil and a grate attachment in a checkered chamber. Pipes of pure copper comprising the hot water coil are threaded back and forth over the top row of the two-pass tubes which carry the gases of combustion thru the boiler water. In other words an indirect heating element of high conductivity is submerged in the boiler water right at the zone of highest temperature.

The consequent fast rate of heat transfer due to the high degree-differential between the boiler water and the supply water results in a continuous flow of 'piping' hot water through the coil.

Blue Print Diagram at top of adjacent page, shows the Kewanee submerged Indirect Heating Coil assembled in our Square Type "R" Boiler. Coil connection and locating dimensions are tabulated beneath the diagram.

KEWANEE STEEL BOILER — Electric-Weld — TYPE R —With Auxiliary Incinerator



FRONT-FIRED OIL SETTING WITH GARBAGE GRATE AT REAR

REAR-FIRED OIL SETTING WITH GARBAGE GRATE AT FRONT

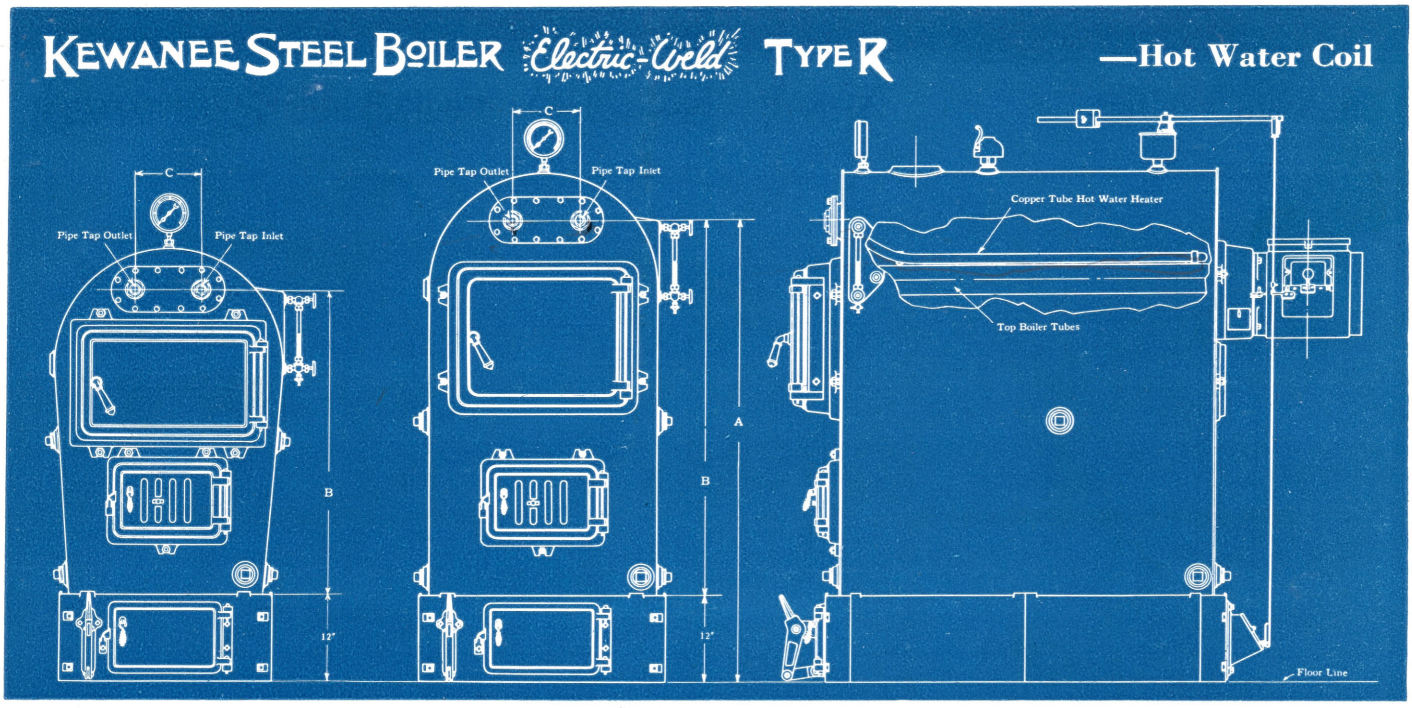
PLANS 1743 TO 1748 & 83R4 TO 83R9

OIL BURNING SETTING. Tabulation and Diagrams illustrate this sanitary economizer consisting of garbage burning grate in checkered-wall chamber as built into front-fired and rear-fired oil or gas burning units.

Number of Boiler.....	1743 83R4	1745 83R6	1746 83R7	1747 83R8	1748 83R9
Front and Rear-Fired:					
A—Base Width .....in.	30	34	34	34	34
B—Base Length.....in.	49½	49½	55½	61½	67½
C—Firebox Length....in.	38	38	44	50	56
D—Firebox Height.....in.	21	24	24	24	24
E—Furnace Length....in.	21½	21½	27½	33½	39½
F—Furnace Width.....in.	17¼	21¼	21¼	21¼	21¼
Front-Fired only:					
G—Height of Garbage Door.....in.	6½	10	10	10	10

This facility for incineration is a needful adjunct to any domestic menage, making for cleanliness and health around all habitable quarters as well as for economy. It is an extra that soon pays for itself, saving fuel by burning waste matter.

KEWANEE STEEL BOILER Electric-Weld TYPE R —Hot Water Coil



SIZES -742 AND -743, 83R1 TO 83R4 SIZES -745 TO -748, 83R6 TO 83R9

KEWANEE INDIRECT HOT WATER COPPER COILS FOR SQUARE TYPE "R" BOILERS

MEASUREMENTS	Number of Boiler	742 743	745 746 747 748	83R1 83R2 83R3 83R4	83R6 83R7 83R8 83R9
A—Height of Coil Connection above Floor	in.	54¼	63½	54¼	63½
B—Height of Coil Connection above Base	in.	42¼	51½	42¼	51½
C—Centers of Coil Pipe Tappings—Storage Tank Coils	in.	9¼	9¼	9¼	9¼
—Instantaneous Coils	in.	10½	10½	10½	10½
Water Line Heights for —Single Coil with Storage Tank	in.	50½	59½	49	58½
—Double Coil with Storage Tank	in.	51½	60½	50	59
—Double Coil Instantaneous Flow	in.	50½	59½	....	....
—Triple, Quadruple Coil Instantaneous Flow	in.	....	....	50	59
Size of Pipe Inlet and Outlet —Single Coil Tank or Double, Triple Instantaneous	in.	1	1	1	1
—Double Coil Tank or Quadruple Instantaneous	in.	1¼	1¼	1¼	1¼

For Series 2742-2748, 1742-1748, 0742-0748 coil measurements are same as for Series 742-748 above. And 083R1-9 same as 83R1-9.

CAPACITIES:

Storage Tank Coils 90 to 720 gallons heated 100° from 40° to 140° in 3 hours with boiler water at steaming temperature.
Instantaneous Coils 185 to 650 gallons heated 100° from 40° to 140° in 1 hour with boiler water at 180°.

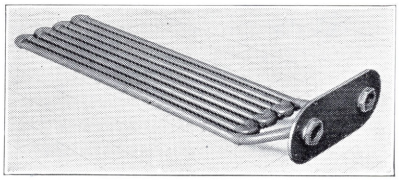
DETAILS OF COIL DATA WITH CAPACITY RATINGS AND METHOD OF SELECTION GIVEN IN SEPARATE BULLETIN

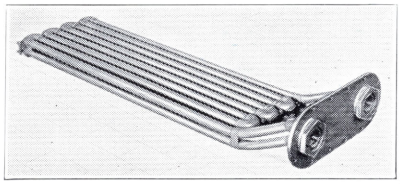
The complete range of styles available with the Kewanee Domestic Hot Water Coil is an additional advantage, permitting selection of the correct size and capacity either for **Storage Tank** Operation or for **Instantaneous Tankless** Performance. Successful results are sure whichever system is preferred, provided local water conditions permit, because every element of design has been carefully considered and weighed, methods of manufacture perfected and the working qualities tested.

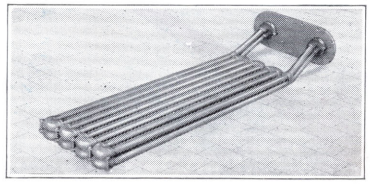
The Kewanee Coil Assembly is built integral and may be easily installed on the job in the Coil frame provided for that purpose; or usually the Coils may be installed by the manufacturer at the factory in which case there are no assembling charges. Coils are interchangeable in boilers of same Series.

Jacketed boilers are provided with removable coil cover for access to the Coil from the front.

Type "R" Boiler ratings do not include allowance for heating domestic water by indirect Coils. With STORAGE TANK operation, allow ½ sq. ft. steam radiation for each gallon capacity of Coil. For INSTANTANEOUS flow, allow 4 sq. ft. of steam radiation for each gallon capacity of Coil, except no allowance is required when water heating demand is less than 10 minutes in any hour.







The Hot Water Coil piping is arranged either in Single, Double, Triple, or Quadruple rows depending upon the output desired. Note substantial fittings and generous size piping.

TRAINLOAD SHIPMENT MAY BE MADE SAME DAY ORDER IS RECEIVED

KEWANEE STEEL BOILERS

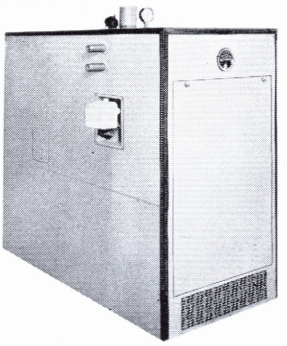
CATALOG 88 *Steel Residence Boilers Electric-Weld*

Boiler Numbers

742 — 748
2742 — 2748
1742 — 1748
0742 — 0748
83R1 — 83R9
O83R1 — O83R9

SMARTLINE
REG. U. S. PAT. OFF.

Square Type "R"



Sq. Ft. Radiation

Soft Coal 790 — 1960
Hard Coal 790 — 1960
Oil or Gas 840 — 2380
Stoker 840 — 2380
Oil or Gas 901 — 2924
Stoker 901 — 2924

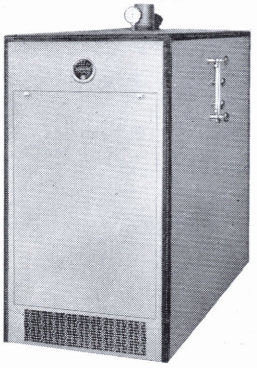
ALL TYPES OF KEWANEE BOILERS MAY ALSO BE SHIPPED FROM STOCK

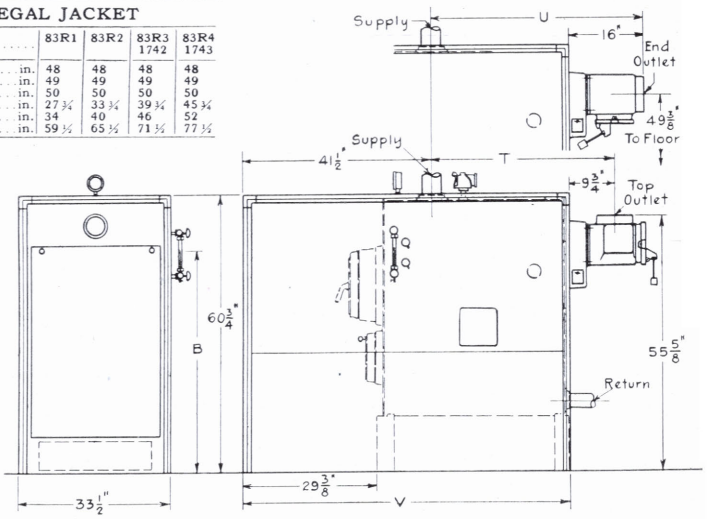
Separate Catalog on Kewanee Steel Water Heating Garbage Burners, Tabasco Water Heaters and Tanks, Kewanee Power Boilers, Sent on Request.

SQUARE "R" OIL OR GAS WITH REGAL JACKET

Boiler Number		83R1	83R2	83R3 1742	83R4 1743
B—Water Line, Without Hot Water Coil	in.	48	48	48	48
With SL Coil	in.	49	49	49	49
With DL, TN, or QN Coil	in.	50	50	50	50
T—Steam Outlet Center to Top Smoke Outlet Center	in.	27¾	33¾	39¾	45¾
U—Steam Outlet Center to Smoke Outlet End	in.	34	40	46	52
V—Jacket Length Overall	in.	59½	65½	71½	77½

Other dimensions on page 9.

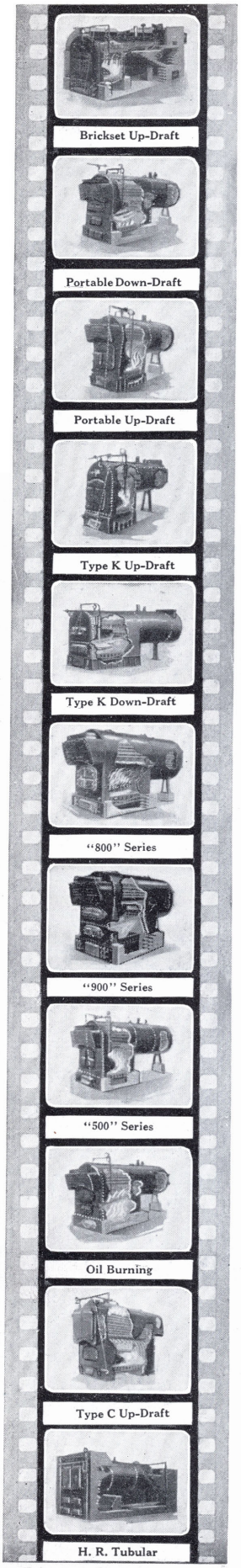




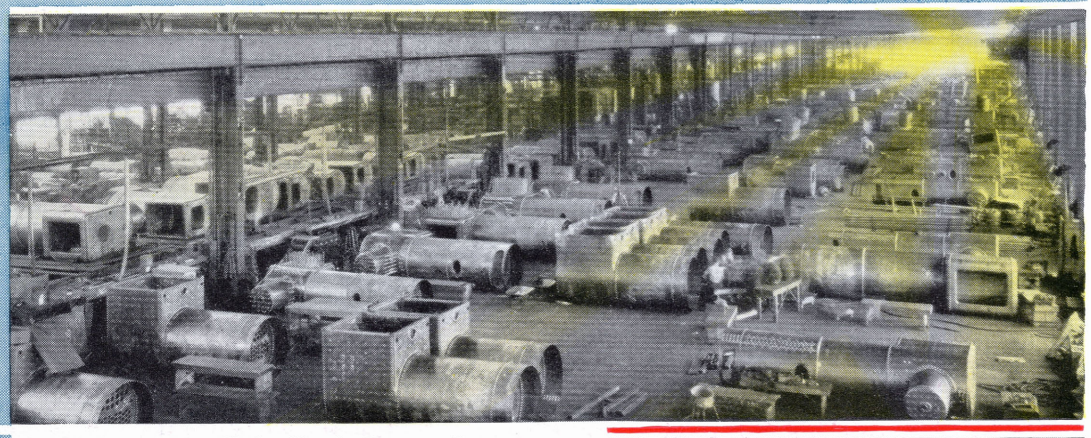
KEWANEE SQUARE "R" REGAL JACKET FOR COMPLETE ENCLOSURE WITH ANY BURNER. Four Sizes Only.

KEWANEE BOILER CORPORATION

Division of AMERICAN Radiator and "Standard" Sanitary Corporation
Head Office and Works
KEWANEE, ILLINOIS
MEMBER OF STEEL HEATING BOILER INSTITUTE



For Every Radiation Load
There's A Kewanee Built
To Carry It



A Thousand Boilers Under Way in Kewanee Shops

Random Readings from the Kewanee Archives

Bought In 1898

I have a Kewanee house heating boiler that I bought in 1898. It is about 500 feet capacity, still in good condition

DR. W. E. L. FROGGATT,
Cross Plains, Wis.

43 Years Operation

Please ship to me grates for Kewanee Boiler No. 6.

. . . This Boiler has been in operation 43 years and I expect to use it several more years. My former correspondence with you was in 1911. This boiler was installed the winter of 1885, and has never been of any expense with exception of a grate section now and then. The catalogue of 1875 issue describes this boiler.

C. V. MARSHALL,
Farmer and Feeder
Ipava, Illinois.

Endorses Kewanee

. . . . It gives us pleasure to advise that we most heartily endorse and recommend the use of Kewanee Boilers in all apartment buildings both large and small type. We have been using Kewanee Boilers in our buildings for the past 12 to 15 years and have found them satisfactory in every case. . . .

THE PHILLIPS BUILDING CO.
Kansas City, Mo

40 Odd Years Ago

Forty-odd years ago I bought through my good friend, Mr. P. S. Cook, of this city, one of your Kewanee Boilers, which has been in continuous service all of these years and has given wonderful service, both in supplying a satisfactory amount of heat and economical consumption of coal. The little old furnace is radiating heat in the same satisfactory way as it has done in over forty years. . . .

G. E. ABBOTT,
Cheyenne, Wyoming.

Best Boiler, Most Economical Buy

. . . . Most of the small boilers that we have bought of you have been the No. 4. Our reason for using this boiler has been that we think it is the best boiler and the most economical boiler that we can buy regardless of price.

We have some of your other boilers that are larger than No. 4 that we have had in use for twelve or thirteen years without very much expense on them and very little trouble.

I am using the smaller type of boiler for the smaller buildings that we build and sell all the time, and the fact that the Kewanee is known by everybody as a good boiler makes one thing that goes into the building an article that we do not have to sell our customers on.

C. O. JONES
Apartment Builder
Kansas City, Missouri.

None Better

. . . . . We have used a Kewanee Boiler in our residence since 1895. The only expense that we have had was replacing two sections of fire-grate.

We are very much pleased with the boiler and do not believe there is any better.

Yours truly,
E. J. ELY.

Three Dollars in 15 Years

We used one of your No. 4 Kewanee Steel Boilers for fifteen years, at an expense for repairs of less than $3.00. This boiler was in use about ten or twelve years before I purchased it. The parties to whom I sold my house are still using the boiler, and as far as I know it is still giving excellent satisfaction.

Yours very truly,
C. E. SARGENT.

First Steam Heat

Twenty-seven years ago I put in the first steam heating boiler in Oskaloosa—a No. 6 Kewanee, and it is as good today as ever. Seventeen years ago I put in a No. 8. Fifteen years ago a No. 12, ten years ago a No. 6, eight years ago a No. 6. These boilers are all in use and are as good as when I bought them. There are no repairs on Kewanee boilers except grate bars.

Very truly yours,
E. H. GIBBS.

Not Five Dollars Expense

. . Kewanee boiler installed in my residence in the year 1879. I can truthfully say and with pleasure state that there has not been five dollars expended upon this boiler since installed. The grate today is to all appearances as good as when put in twenty-six years ago. This boiler has under the lowest pressure of temperature always proved adequate and kept my home comfortable, generally under a steam pressure of two or three pounds.

Yours truly,
W. W. ENNIS.

Would Not Hesitate

. . . . There may be other methods superior to the old Kewanee steam heater, but after twenty-five years of experience with it, I would not hesitate for a moment to install it in a new dwelling house.

Yours very truly,
J. F. MEEKER.

In 1885

The Kewanee Steam heating plant placed in my home in 1885 has had little repairing, and is yet giving satisfaction. . . . It occurs to me that one of your men should examine same soon and if repairs are needed, such can be done. Kindly advise me upon the matter.

Yours truly,
F. W. CLARK.

Used Soft Coal & Slack

In regard to the Kewanee Steam Heater which was placed in our house in 1886 will say it has proven entirely satisfactory. After having used it for fifteen (15) years we needed a new grate, and two years ago the heater was reset, and a new front door, lining inside door and adjustable grate were needed. This constitutes the amount of repairs in nineteen (19) years during the whole of which time the fuel used has been soft coal and slack.

Very respectfully,
D. F. SARGENT.

Repair Hardly Worth Mentioning

Your make of Kewanee boiler was put in my house twenty-eight years ago, and it has done good service all these years, and is a good heater yet. The running expenses of the boiler have been very light. We have had two or three new grates and diaphragms. The last change we made with the grates was from soft coal to hard coal. The expense for repairs has been so small it is hardly worth mentioning.

Respectfully yours,
MRS. J. H. DELANO.

The Kewanee Residence Type R Series

Since 1879

The boiler you placed in my house in 1879 is still in use. I sold my residence in 1899. Up to that time the only repairs put in same was a new grate—the old one was broken by accident. . . . The boiler has given good satisfaction. The parties I sold my residence to are using the boiler with satisfactory results.

Truly yours,
S. P. KINSELY.

All and More

Ottumwa, Iowa,

. . . . I wrote you in answer to inquiries, that my boiler needed no repairs. It was placed in my house in 1879 and since that time I have never paid for repairs $5.00. At one time the brick work was pointed up, nothing more. It is still in good working order and I am glad to still recommend the Kewanee No. 6. It has been all and more than was promised for it.

Yours sincerely,
J. W. MERRILL.

Uses Hard Coal

Charles City, Iowa,

. . . . I used a Kewanee hard coal boiler in my residence for more than 15 years, and during that time I do not think the repairs would average a dollar a year, in fact they were practically nominal. The Boiler gave good satisfaction.

I am also using a Kewanee soft coal boiler in an office building, and that, too, works well.

Yours truly,
C. D. ELLIS.

No Repairs

A hot water heating plant with Kewanee Boiler was placed in my house about 10 years ago, and it gives me much pleasure to say it has proved satisfactory in every way. So far there has not been any expense for repairs. I like and can recommend the Kewanee.

Respectfully,
P. W. GALLAGHER.

Repairs Three Dollars

Replying to your letter of 25 inst. will say that I have been using one of your boilers for the past nineteen years, and it is in as good condition apparently as it was the day it was installed in 1886. The total repairs during that time have been one section of the grate and one rubber diaphragm, costing less than three dollars.

Yours truly,
OLIVER CRISSEY.

Heats Enlarged House

. . . . What I wrote you of the Kewanee Boiler in my house in 1896 is as true now as it was then. I cannot find that it has cost anything for repairs since that date—but the house has been rebuilt and enlarged about fifty per cent without making any change in the heating apparatus, and the enlarged house is warmed just as thoroughly as the smaller one, though the boiler has to supply at least fifty per cent more steam. The whole apparatus has been satisfactory in every way.

Yours truly,
E. P. RIPLEY.

One in a Lifetime

Morris, Minn.

Regarding the heating (steam) plant which you put in for me in 1891 in my dwelling, I have this complaint to make. It has always required the service of a man at least fifteen minutes every morning and evening since I put it in operation. But with this exception it comes as near being perpetual motion and perpetual satisfaction as anything can possibly be. The boiler in the plant was a Kewanee and I have never had a moment's trouble with the plant and we have perpetual summer in our house regardless of the outside conditions. This heating plant was installed in September 1891—just fourteen years ago, and my entire bill for keeping furnace repaired up to this time has been about $5.00 for two new valves and 4 grates. If your customers are all as well served by you as I have been you will only have a chance to sell them one heating plant in their lifetime.

Respectfully,
S. STEWART.

Written 24 Years Ago

Will say that I have used the Kewanee No. 6 Boiler at my residence for 23 years, and but for renewal of grates 2 or 3 times has been no expense—good boiler yet. Also have used No. 13 at my business block for 5 or 6 years. I consider them the best for a steam heater that I know of.

Very respectfully,
L. B. FARMSWORTH.

In 1879

However with regard to the Kewanee Boiler placed in his residence in 1879, I can say that it has been in constant use ever since, and has given almost perfect service. I have taken care of it myself for several years, and have found it easy to manage at all times. With the exception of a general overhauling given it in the fall of 1896 and a new grate put in a couple of years ago, it has needed no repairing. It has given longer and more faithful service than anyone had a right to expect. The boiler in the National Bank has almost equally as good a record. I am,

Truly yours,
H. McC. JOHNSON.

When House Was Built

. . . . I have used one of your Kewanee boilers in my house, which was put in at the time the house was built, 21 years ago, and can say I have been very well satisfied with its operation and service. The approximate cost of repairs during this time has been only nominal.

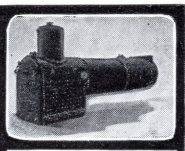
Yours very truly,
J. B. GEMBECK.

Installed in 1877

. . . . Referring to the Kewanee boiler installed in my father's residence in 1877, and which I operated personally for years, I wish to say the boiler was operated every Winter, continuously, until the Winter of 1901 when it was replaced by another of the same make. During that period, to my knowledge, the only repairs made were the renewing of the grate and the rubber disk in the damper regulator.

I believe the boiler to be as economical of operation and fully as good a steamer, if not better, than any heating boiler now on the market that I am acquainted with.

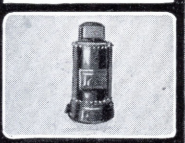
Yours very truly,
HASWELL T. BONFIELD.



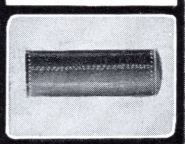
Oil Country Boiler

Type D Garbage Burner

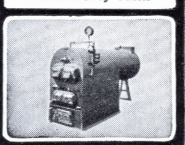
Tabasco Surface Burning



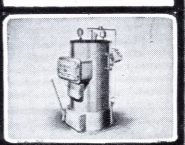
Tabasco Magazine Feed



Extra Heavy Tank

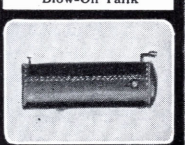


"G" Series



Round "R" Boiler

Blow-Off Tank



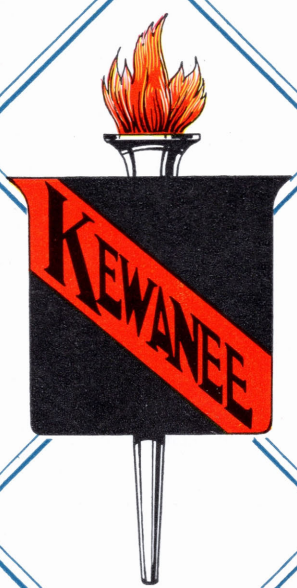
Air Receiver

Type A Garbage Burner

Type H Garbage Burner

The Kewanee Line Includes Every Size Steel Heating Boiler

THE PRYOR PRESS, CHICAGO


KEWANEE